January 19, 2005

Mr. Mike Blum
Washington State Department of Ecology
Southwest Regional Office
PO Box 47775
Olympia, Washington 98504-7775

Re: Addendum to RI/FS Work Plan
Former Pacific Powder Site
Project No. 030093-003-01

Dear Mike:

This letter represents an addendum to the Draft Remedial Investigation/Feasibility Study (RI/FS) Work Plan for the Former Pacific Powder Site dated May 7, 2004, and is incorporated into the Draft Final RI/FS Work Plan dated November 2004. The purpose of the addendum is to address issues identified during our September 29, 2004, meeting with you and presented in your October 8, 2004, letter. This addendum also provides a minor revision to the RI/FS Work Plan based on the interview with Mr. Bill Garson on January 11, 2005. We appreciate the opportunity to update the RI/FS Work Plan in this format rather than reproducing the entire document, while providing information that you requested to help clarify potential deficiencies in Dyno Nobel's documentation of their site cleanup activities. Ecology's comments from your October 8, 2004, letter (in plain type) and our responses (in italics) are presented below.

1. The area surrounding the former MEAN Plant does not have adequate groundwater monitoring well coverage to detect potential contamination. Diesel-impacted soil contamination was found at depths of up to 27 feet below ground surface (BGS). The existing monitoring wells did not detect contamination even though groundwater in those wells is only 20 to 21 feet BGS. There used to be a large above ground storage tank nearby that stored diesel for use at the facility. Based on groundwater gradients, the three existing monitoring wells are not situated appropriately to detect potential groundwater contamination from that former above ground tank and the associated pipeline. An additional monitoring well south of the MEAN Plant area, as we discussed during the meeting, would resolve this issue.

   We reviewed MEAN Plant cleanup documentation provided by Dyno Nobel (Dyno) to identify the former location of the diesel AST and the associated underground pipeline. Based on this review, we plotted the approximate locations of these features on Figure 1. We also plotted the locations of the monitoring wells (identified as Wells 1, 2, and 3) installed in the MEAN Plant area by Conrex in 1994. Petroleum hydrocarbons were not

detected in groundwater samples collected from these wells by Conrex (February 1994) and Olympic Environmental (December 1995). Based on our current understanding of site groundwater flow directions, Conrex's well 1 and possibly well 2 were positioned downgradient of the petroleum-impacted soils identified by Dyno Nobel in the MEAN Plant area. The three Conrex wells were abandoned during logging operations conducted in the late 1990s.

Per Ecology's request, Section 2.2 of the RI/FS Work Plan is amended to include installation of an additional monitoring well south of the existing monitoring well network in a location downgradient (west) of the former underground diesel line and AST. This well, identified as MP-MW4 on Figure 1, will be installed using a hollow-stem auger drill rig and will consist of a 2-inch-diameter PVC well casing with a 10-foot-long well screen placed across the water table. The well will be developed prior to sampling and will be tested for the same analytical parameters as the other MEAN Plant wells, including TPH-G, TPH-Dx, volatile organics, dissolved metals, and conventional parameters (see Table 2-2 in the RI/FS Work Plan).

2. One of the Powder Plant (PP) production wells (PP-4 which is located east-northeast of the former Powder Plant Area) should be sampled as part of the scheduled groundwater sampling effort as we discussed during our meeting. Well PP-4 should be sampled and analyzed for the full suite of contaminants as proposed in the draft work plan for other wells. We understand that PP-4 is an operating production well, with an existing pump and that it is not a monitoring well.

   Section 2.2 of the RI/FS Work Plan is amended to include sampling of production well PP-4 as part of the scheduled RI groundwater sampling event. The groundwater sample collected from well PP-4 will be analyzed for the same chemical parameters as the Powder Plant Area wells, including petroleum hydrocarbons, volatile and semivolatile organics, dissolved metals, nitroaromatics and nitroamines, glycols, and conventional parameters (see Table 2-2 of the RI/FS Work Plan).

   As we discussed during our September 29 meeting, production wells PP-2 and PP-4 will not be decommissioned. Section 2.2 of the RI/FS Work Plan is therefore amended to exclude decommissioning of production wells PP-2 and PP-4.

3. At the location of the former truck/diesel shop, there was extensive soil contamination discovered and a large volume of impacted soil was removed by Dyno Nobel. Hart Crowser apparently has photos of the cleanup that occurred. The Ecology Team would like to review those pictures. Please also provide your "interpretation" of the adequacy of the cleanup conducted by Dyno Nobel and their contractors at the former truck/diesel shop.

   Documents provided by Dyno, including the 1994 and 1995 environmental cleanup reports, describe remediation activities conducted in several areas surrounding the Truck/Diesel Shop. In November and December of 1993, Dyno performed a large soil removal action in an area identified as the Drain Oil Pit located south of the Diesel Shop building. Elevated concentrations of motor oil were detected from the ground surface

down to a maximum depth of 22 feet below ground surface. The resulting excavation was approximately 20 feet by 35 feet and approximately 22 feet deep. Confirmation soil samples collected within the excavation did not exceed 200 mg/kg TPH (typically measured using EPA Method 418.1) and Dyno considered the excavation to be clean. Dyno's soil cleanup goal of 200 mg/kg for diesel- and oil-range hydrocarbons was an order of magnitude more restrictive than the current MTCA Method A cleanup level of 2,000 mg/kg (based on groundwater protection).

Additional smaller soil removal actions were completed at the Truck/Diesel Shop by Dyno to remove petroleum-impacted soils in the vicinity of two service door entrances (including the northern entrance, which was adjacent to a waste oil tank containment pad) and the heating oil tank containment area. Excavation and sampling activities performed in these areas are described in Dyno's 1995 cleanup report. Cleanup of a culvert (surface) sump located northeast of the Diesel Shop involved removal of petroleum-impacted surface and shallow subsurface soils and is described in Dyno's 1994 cleanup report. Dyno noted in the cleanup reports that confirmation soil samples met the 200 mg/kg TPH cleanup goal and that the Truck/Diesel Shop sites were successfully cleaned up.

Pictures of the Truck/Diesel Shop cleanup excavations are provided in Dyno's recent submittals (identified as Photos Areas #1, #3, and #4). We have also attached photos taken by Mark Johns of Dyno's cleanup activities including those completed in the Truck/Diesel Shop area.

The effectiveness of Dyno's cleanup activities performed in the Truck/Diesel Shop area was evaluated as part of Hart Crowser's Phase II Site Investigation (dated February 24, 2003). Groundwater samples collected in two wells located downgradient of the Truck/Diesel Shop (PP-MW3 and PP-MW5) did not contain detectable concentrations of petroleum hydrocarbons. The MTCA Method A TPH soil cleanup levels for industrial and unrestricted land uses are based on protecting groundwater quality, and site-specific groundwater sampling and analysis can be used to demonstrate that soil concentrations are protective of groundwater quality (WAC 173-340-747[8]). As outlined in the RI/FS Work Plan, an additional round of groundwater sampling will be performed from monitoring wells PP-MW3 and PP-MW5 as part of the RI/FS, in part, to verify that current soil quality in the Truck/Diesel Shop area is protective of groundwater quality.

Research of Materials Listed in Dyno's January 2004 Information Submittal

During our September 29, 2004 meeting, Ecology requested that we perform additional research on the products and materials that Dyno listed as being stored in the Powder Plant Area buildings (per January 5, 2004 Dyno submittal). Most of the materials listed are either not toxic (e.g., Paraffin Wax) or have components that are already being evaluated as part of the RI field program (e.g., calcium and sodium nitrates). However, sodium thiocyanate, listed as having been stored in the Truck/Diesel Shop (Building K), is of potential environmental concern and is not currently being tested as part of proposed RI field investigation.

As part of our research effort, we performed internet and literature searches on sodium thiocyanate usage in the explosives industry and conferred with our project team's explosives expert (Ed Meeks of MWH). We were not able to identify specific production or other known activities performed at the Former Pacific Powder site which would have involved use of sodium thiocyanate. According to the reference book, "The Chemistry of Powder and Explosives" (Davis 1943), sodium thiocyanate was not associated with the production of nitroglycerin or dynamite. We did find internet references which noted the use of sodium thiocyanate in fireworks (mainly in "snakes" but also apparently used in some other firework products). The primary uses of sodium thiocyanate are in the photography, pharmaceutical, synthetic fiber, electroplating, pesticide, and concrete/cement manufacturing industries.

Sodium thiocyanate is inferred to have been used in Dyno's ANFO and/or emulsion explosives operations because it is included in their listing of raw materials and there is no evidence that it is a component in the manufacture of dynamite.. Therefore, we propose to sample monitoring wells located in the MEAN Plant, ABS Landfill, Drum Burial, and Powder Plant (including plant well PP-4) areas for thiocyanate. Severn Trent Laboratory (STL) will perform groundwater thiocyanate testing using Standard Method 4500-CN-M with a reporting limit of 0.1 mg/L.

Thiocyanates are very soluble and not likely to be present in soils at concentrations of environmental concern (no Ecology CLARC 3 soil value available, but EPA Region 9 PRG for residential direct contact is 3,100 mg/kg). If elevated thiocyanate concentrations are detected in the groundwater samples, the need for additional soil and/or groundwater testing will be discussed with Ecology. Note that the EPA Region 9 PRG for thiocyanate in drinking water is 1.8 mg/L.

Revision to RI/FS Work Plan Based on Interview of Mr. Bill Garson

On January 11, 2005, representatives of Ecology, Aspect Consulting, and Hart Crowser, conducted an interview of Mr. Bill Garson. Mr. Garson worked at the former Pacific Powder site for many years. The summary of that interview is presented under separate cover. Based on historical information provided by Mr. Garson, one change to the RI/FS Work Plan is made.

Section 2.1.10 of the draft final RI/FS Work Plan describes four Unidentified Disturbed Areas, and the locations of those four areas are shown on Figure 2-1 of the Work Plan. Mr. Garson indicated that the two Unidentified Disturbed Areas northeast and due east of the Mean Plant were historically used as burn areas where off-specification explosives materials were burned. The Work Plan includes collection of three discrete surface soil samples for analysis of diesel- and oil-range TPH and total arsenic and lead. Because of the potential presence of residual explosive compounds in these reported burn areas, Section 2.1.10 of the Work Plan is amended to add analysis of nitroaromatics/nitroamines for these six soil samples. Mr. Garson indicated that the two Unidentified Disturbed Areas southeast of the Mean Plant (along road between Magazine 1 and Trailer Storage location) were trailer storage areas. Therefore, no change is made to the Work Plan's proposed sampling and analysis for these areas (3 discrete surface soil samples for analysis of diesel- and oil-range TPH and total arsenic and lead). In the final RI/FS Work Plan, these Unidentified Disturbed Areas will be renamed to reflect the information provided by Mr. Garson.

We trust that this Addendum addresses all outstanding issues regarding the draft RI/FS Work Plan and serves to take the RI/FS Work Plan from draft to draft final status. We will also distribute updated covers and spines for the RI/FS Work Plan indicating its draft final status. We have 3-hole punched this Addendum to allow its inclusion at the beginning of the RI/FS Work Plan binder.

If you have any questions or comments regarding this Addendum, please give me a call at (206) 838-5830.

Sincerely,

Aspect consulting, LLC

Steve J. Germiat, LHG, CGWP
Associate Hydrogeologist
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Attachments:
Figure 1 – Groundwater Sampling Plan, MEAN Plant Area
Mark Johns Photo Log

cc: Lynn Manolopoulos, Davis Wright Tremaine
Kristie Carevich, Assistant Attorney General
Dan Alexanian, Ecology

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